

CLAIMS

1. A treatment device for applying electrical impulses to a living body through the skin, for treating a variety of clinical conditions, comprising:
- 5 a pair of electrodes for contact with the skin;
a waveform generator for repeatedly generating an AC waveform for applying electrical impulses through the electrodes to the skin;
a detector for detecting changes in the skin impedance and for generating detector output signals representing the skin impedance;
- 10 means responsive to the detector output signals for monitoring the responsivity of the skin; and
indicator means activated by the monitoring means for generating a first indication when a predetermined level of responsivity is reached and a second indication when a pre-determined treatment has been administered.
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2. A treatment device according to claim 1, further comprising:
means responsive to the detector output signals for producing output data representing the responsivity of different zones of a pre-determined area of the body;
- 20 a store for the output data; and
means for selecting a treatment zone from amongst the different zones based on an evaluation of the output data to select the zone of greatest responsivity.
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3. A treatment device according to claim 1 or 2, in which:
The detector generates detector output signals in the form of pulses whose duration represents the skin impedance;
The monitoring means measures the duration t of each pulse; and

The indicating means is arranged to generate each indication when t satisfies a predetermined function of t.

4. A treatment device according to claim 3, in which:

5 The indicating means is arranged to generate the first indication when:

$$t_2 = 4.087 t_1^{0.7131}$$

5. A treatment device according to claim 3 or 4, in which:

10 The indicating means is arranged to generate the second indication when:

$$dZ/dt = 0$$

where Z is the skin impedance.

15 6. A treatment device according to any preceding claim, in which the AC waveform is a decaying sinusoidal waveform having an initial amplitude V_{peak} , a half wavelength t_1 and a decay t_{decay} and in which V_{peak} , t_1 and t_{decay} can all be variably set by the user.

20 7. A treatment device according to claim 6 in which the repetition rate of the repeatedly generated AC waveform can be variably set by the user.

25 8. A treatment device according to any of claims 1 to 7 in which the detector comprises a comparator for comparing an output from the electrodes with a threshold level and for generating output pulses whose duration is determined by the threshold level.

9. A treatment device according to claim 8 in which the duration of the output pulses represents the skin impedance.

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10. A treatment device according to claim 8 or 9 in which the monitoring means comprise means for measuring the duration of the pulses output by the comparator.
- 5 11. A treatment device according to any preceding claim, in which the indicator means comprise at least one audio indicator.
12. A treatment device according to any preceding claim, which is battery powered.
- 10 13. Treatment apparatus for applying electrical impulses to a living body through the skin, for treating a variety of clinical conditions, comprising:
a pair of electrodes for contact with the skin;
a waveform generator for repeatedly generating an AC waveform for
15 applying electrical impulses through the electrodes to the skin;
means responsive to a resistance generated between the electrodes due to the skin impedance for detecting the responsivity of different zones of a pre-determined area of the body and for producing output data representing the responsivity of each zone;
20 a store for the output data; and
means for selecting a treatment zone from amongst the different zones based on an evaluation of the output data to select the zone of greatest responsivity.
- 25 14. Treatment apparatus according to claim 13, in which the output data is in the form of numerical values, and the selecting means evaluates the data according to the highest value.

15. Treatment apparatus according to claim 13 or 14, in which the selecting means comprise means for processing the output data contained in the store, and a display operable by the processing means for indicating the selected treatment zone.

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16. Treatment apparatus according to claim 15, in which the processing means is arranged to present on the display a body map having an outline representing the predetermined area of the body and a plurality of map locations within the outline, each of which represents a corresponding zone of the predetermined area.

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17. Treatment apparatus according to any of claims 13 to 16, in which the processing means are arranged to present at each map location on the display output data representing the associated zone.

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18. Treatment apparatus according to any of claims 13 to 17 including a treatment device according to any of claims 1 to 12.

19. A treatment system for the treatment of a living body, comprising:
20 a treatment device for applying electrical impulses to the body through the skin, the treatment device including a CPU;
a PC for storing patient records;
a cradle for the treatment device, the cradle being connected to or incorporated as a part of the PC; and
25 means for receiving a smart card including a unique patient ID and for providing access to the patient records associated with the unique patient ID.

20. A treatment system according to claim 19 in which the cradle includes a receptacle for the smart card.

21. A treatment system according to claim 19 or 20, in which the smart card carries a PIN number, and further comprising input means by which a patient can input their PIN number, and means for verifying that the input PIN number
5 matches the patient ID on the smart card.

22. A method of treating a living body through the skin, comprising the steps of:

- placing a pair of electrodes in contact with the skin;
- 10 generating an AC waveform to supply electrical impulses through the electrodes to the skin;
- detecting changes in the skin impedance and generating output signals representing the skin impedance;
- monitoring the responsivity of the skin; and
- 15 indicating firstly when a predetermined level of responsivity is reached and secondly when a predetermined treatment has been administered.